

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-6-649

Relating to Certification of New Heavy-Duty Motor Vehicle Engines

GENERAL MOTORS CORPORATION

Pursuant to the authority vested in the Air Resources Board by Sections 43100, 43102 and 43103 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-3;

IT IS ORDERED AND RESOLVED: That the following 1994 model-year General Motors Corporation Otto-cycle engines are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 14,000 pounds:

Fuel Type: Gasoline

<u>Engine Family</u>	<u>Engine Displacement Liters (Cubic Inches)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
RGM4.3C5GAAA	4.3 (262)	Oxidation Catalytic converter Heated Oxygen Sensor Exhaust Gas Recirculation Throttle Body Fuel Injection
RGM5.7C5GAAA	5.7 (350)	Oxidation Catalytic Converter Oxygen Sensor Exhaust Gas Recirculation Throttle Body Fuel Injection
RGM7.0C5GAAA	6.0 & 7.0 (366 & 427)	Oxidation Catalytic Converter Oxygen Sensor Exhaust Gas Recirculation Throttle Body Fuel Injection
RGM7.4C5GAEA	7.4 (454)	Three-Way Catalytic Converter Oxygen Sensor Exhaust Gas Recirculation Throttle Body Fuel Injection

Engine models and codes are listed on attachments.

The certification exhaust emission standards for these engine families in grams per brake horsepower-hour are:

<u>Total Hydrocarbons</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>
1.9	37.1	5.0

The certification exhaust emission values for these engine families in grams per brake horsepower-hour are:

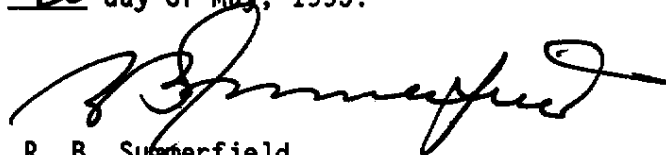
<u>Engine Family</u>	<u>Total Hydrocarbons</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>
RGM4.3C5GAAA	0.5	6.1	4.3
RGM5.7C5GAAA	0.9	10.7	3.9
RGM7.0C5GAAA	1.1	16.2	3.5
RGM7.4C5GAEA	0.5	11.5	3.5

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2035 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachments.

Executed at El Monte, California this 20th day of May, 1993.



R. B. Summerfield
Assistant Division Chief
Mobile Source Division

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17.00.00.00-4
(1994)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY DUTY GASOLINE ENGINES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Families: RGM4.3C5GAAA
RGM5.7C5GAAA
RGM7.0C5GAAA
RGM7.4C5GAEA

Engine CID (Liters) - Type: 262 (4.3), 350 (5.7), 366 (6.0), 427 (7.0), 454 (7.4)

ABBREVIATIONS:

Ignition System

CA-Centrifugal Advance
EEC-Electronic Engine Control
EI-Electronic Ignition
ESAC-Electronic Spark Advance Control
VA-Vacuum Advance
VR-Vacuum Retard
ECU-Electronic Control Unit

Fuel System

CFI, CL, DID, DIP, EFI, MFI
nV-nVenturi Carburetor
Injection

GM Abbreviations

A/C-Air Conditioning
FC-Forward Control
Injection
HD-Heavy Duty
CID-Cubic Inch Displacement
TBI-Throttle Body Injection
RWD-Rear Wheel Drive
4x2-Two Wheel Drive
4x4-Four Wheel Drive
6x4-Four Wheel Drive

Engine: Front (all Vehicles)

Drive: See Chassis Type, all 4x2 vehicles are RWD.

Exhaust Emission Cont System

AIP-Air Injection Pump
AIV-Air Injection Valve
CL-Closed Loop
DBC-Dual Bed Catalyst
EGR-Exhaust Gas Recirculation
EIC-Electronic Injection Control
EM-Engine Modification
OC-Oxidation Catalyst System
O2S-Oxygen Sensor
HO2S-Heated Oxygen Sensor
SPL-Smoke Puff Limiter or
Throttle Delay

TOC-Trap Oxidizer, Continual
TOP-Trap Oxidizer, Periodical
TR-Thermal Reactor
TWC-Three-Way Catalyst System

Special Features

CCV-Combustion
Chamber Valve
CFI-Central Fuel
Injection
DID-Diesel
Injection-
Direct
DIP-Diesel
Injection-
Prechamber
EFI-Electronic
Fuel

IC-Intercooler/
Aftercooler
MFI-Mechanical
Fuel

TC-Turbocharger

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(1994)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY DUTY GASOLINE VEHICLES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Families:

RGM4.3C5GAAA

RGM5.7C5GAAA

RGM7.4C5GAFA

Vehicle Models (Series)

Engine CID Values Appear Below

Forward Control - G Models

Hi-Cube Van/Magnavan - G30
Cutaway Van/Vandura Spl - G30
Van/Vandura - G30
Sportvan/Rally Wagon - G30

Forward Control - P Models

Forward Control Chassis - P20
Step-Van/Value Van - P20

Forward Control Chassis - P30
Motor Home Chassis - P30
Step-Van/Value Van - P30

350 454
454
454

Suburban
CK20

Pickup
C30

350 454

Forward Control Chassis
P4T042

262

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HDG-SDS

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AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY DUTY GASOLINE VEHICLES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Families: RGM7.0C5GAAA

Vehicle Models (Series) Engine CID Values Appear Below

Forward Control - G Models

Hi-Cube Van/Magnavan - G30
Cutaway Van/Vandura Spl - G30
Van/Vandura - G30
Sportvan/Rally Wagon - G30

Forward Control - P Models

Forward Control Chassis - P20
Step-Van/Value Van - P20

Forward Control Chassis - P30
Motor Home Chassis - P30
Step-Van/Value Van - P30

Conventional Cab & Chassis

C6H042, C7 366, 427
C7H042, C7H064 366, 427

School Bus

D7P042 427
B7T042 366

Forward Control Chassis

P4T042
P6T042 366, 427

Pickup

CK20CC
C20
CK30

Suburban

C20

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AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY GASOLINE ENGINES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Family: RGM4.3C5GAAA

Exhaust Emission Control System: EGR/OC/HO2S/TBI

Liter (CID): 4.3 (262)

Engine Config: V6

ENG MODEL (ENG CODE)	MAXIMUM RATED HP AT RPM	RATED TORQUE AT RPM	IGNITION SYS (ECM) MFR PART NO.	FUEL SYSTEM (TBI) MFR PART NO.	EGR VALVE MFR PART NO.	CATALYST MFR PART NO.
LB4 (6)	155 @ 4000	230 @ 2400	16167811	Rochester 17091028	17087026	25131438

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AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY GASOLINE ENGINES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Family: RGM5.7C5GAAA

Exhaust Emission Control System: EGR/OC/02S/TBI

Liter (CID): 5.7 (350)

Engine Config: V8

ENG MODEL (ENG CODE)	MAXIMUM RATED HP AT RPM	RATED TORQUE AT RPM	IGNITION SYS (ECM/PCM) MFR PART NO.	FUEL SYSTEM (TBI) MFR PART NO.	EGR VALVE MFR PART NO.	CATALYST MFR PART NO.
L05 (3)	190 @ 4000	300 @ 2400	16184465 16184475 16184515 16184525 16184535 16188085	Rochester 17093033 17093190 17093176 17092041	17087185	25131438 25131442 25131444
L05 (4)			16188715	Rochester 17093035 17093176		

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AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY GASOLINE ENGINES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Family: RGM07.0C5GAAA Exhaust Emission Control System: EGR/OC/02S/TBI

Liter (CID): 7.0 (427), 6.0 (366)

Engine Config: V8

ENG MODEL (ENG CODE)	MAXIMUM RATED HP AT RPM	RATED TORQUE AT RPM	IGNITION SYS (ECM) MFR PART NO.	FUEL SYSTEM (TBI) MFR PART NO.	EGR VALVE MFR PART NO.	CATALYST MFR PART NO.
LSO (1) 6.0L	210 @ 4000	325 @ 2400	16186275 16186285 16186295 16186305 16186315 16186325	Rochester 17091129	17090002	25131438
LRO (2) 7.0L	235 @ 3800	385 @ 2400	16186335 16186345 16186355 16186365 16186375 16186405			

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AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY GASOLINE ENGINES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Family: RGM7.4C5GAEA

Exhaust Emission Control System: EGR/TWC/O2S/TBI

Liter (CID): 7.4 (454)

Engine Config: V8

ENG MODEL (ENG CODE)	MAXIMUM RATED HP AT RPM	RATED TORQUE AT RPM	IGNITION SYS	FUEL SYSTEM	EGR VALVE MFR PART NO.	CATALYST MFR PART NO.
			(PCM) MFR PART NO.	(TBI) MFR PART NO.		
L19 (2) 7.4L	230 @ 3600	385 @ 2200	16188045	Rochester	17094028	25143848
			16188075	17094020		25130005
			16188555	17094060		25131392
			16188565			25130892
			16191215			25130001
						25128940

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AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY GASOLINE ENGINES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Family: RGM07.0C5GAAA

Exhaust Emission Control System: EGR/OC/O2S/TBI

Liter (CID): 7.0 (427), 6.0 (366)

Engine Config: V8

ENG MODEL (ENG CODE)	MAXIMUM RATED HP AT RPM	RATED TORQUE AT RPM	IGNITION SYS (ECM) MFR PART NO.	FUEL SYSTEM (TBI) MFR PART NO.	EGR VALVE MFR PART NO.	CATALYST MFR PART NO.
LS0 (1) 6.0L	210 @ 4000	325 @ 2400	16198755 16198765 16198775 16186275 16186285 16186295 16186305 16186315 16186325 16203385	Rochester 17091129	17090002	25131438
LRO (2) 7.0L	235 @ 3800	385 @ 2400	16198785 16198795 16198805 16198815 16198825 16186335 16186345 16186355 16186365 16186375 16186405			

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AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY GASOLINE ENGINES

GREATER THAN 14,000 GVWR

Manufacturer: General Motors Corporation

Executive Order No.: A-6-649

Engine Family: RGM7.4C5GAEA

Exhaust Emission Control System: EGR/TWC/O2S/TBI

Liter (CID): 7.4 (454)

Engine Config: V8

ENG MODEL (ENG CODE)	MAXIMUM RATED HP AT RPM	RATED TORQUE AT RPM	IGNITION SYS	FUEL SYSTEM	EGR VALVE MFR PART NO.	CATALYST MFR PART NO.
			(PCM) MFR PART NO.	(TBI) MFR PART NO.		
L19 (2) 7.4L	230 @ 3600	385 @ 2200	16194675	Rochester	17094028	25143848
			16194685	17094020		25130005
			16194705	17094060		25131392
			16194725	17094071		25130892
			16194735			25130001
			16198045			25128940
			16198075			

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HDG-SDS